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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/018,194	02/04/1998	BARBARA A. GILCHRIST	BU94-15A2	9447
21005	7590	06/06/2005	EXAMINER	
HAMILTON, BROOK, SMITH & REYNOLDS, P.C. 530 VIRGINIA ROAD P.O. BOX 9133 CONCORD, MA 01742-9133			WEGERT, SANDRA L	
			ART UNIT	PAPER NUMBER
			1647	

DATE MAILED: 06/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/018,194	GILCHRIST ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Sandra Wegert	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 08 November 2004.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 57-61,63-67 and 69-73 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 57-61 and 63-73 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 04 February 1998 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

**Detailed Action**

***Status of Application, Amendments, and/or Claims***

The Amendment, sent 8 November 2004, has been entered into the record.

Claims 1-56, 62 and 68 are canceled. Claims 57, 58, 63, 64, 69 and 70 are amended. Claims 57-61, 63-67 and 69-73 are under examination in the Instant Application.

The text of those sections of Title 35, U.S. Code, not included in this action can be found in a prior Office action.

**Withdrawn Objections And/or Rejections**

***Claim Rejections - 35 USC § 112, first paragraph - Enablement.***

The rejection of Claims 33-36 and 53 under 35 U.S.C. 112, first paragraph, for lack of enablement, is *withdrawn* based on canceled claims (8 November 2004).

***Claim Rejections - 35 USC § 112, first paragraph - Written Description.***

The rejection of Claims 56, 62 and 68 under 35 U.S.C. 112, first paragraph, for lack of written description, is *withdrawn* based on Applicants' arguments and the Amendment (8 November 2004) which removed claim language referring to a "pseudo-ligand."

**New/Maintained Objections And/or Rejections**

***35 U.S.C. § 112, First Paragraph, Scope of Enablement***

Claim 57-61 and 63-73 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for methods of inhibiting NGF-responsive hair loss with NGF fragments comprising "KGA", does not reasonably provide enablement for inhibiting hair loss, caused-by or -under all conditions. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims. As discussed in the previous Office Action (10 August 2004) delaying hair loss and maintenance of hair growth in the skin of mammals, and humans, in particular, involves a variety of interacting factors, including the NGF receptor, immunological conditions and the influences of reproductive hormones, as well as many unknown factors (Straile, et al, 1961, J. Exp. Zool. 148: 205-221). There are also different mechanisms of hair maintenance and loss depending on the area of skin studied. Claims 57-61 and 63-73 read on a method of delaying hair loss in a vertebrate by inhibiting apoptosis in keratinocytes. The claimed ligands to be used for the method of the invention are the "KGA" peptides of SEQ ID NO: 4, 9 and 10.

Mild UV radiation was used to cause apoptosis in mouse follicles. It is this apoptosis, as demonstrated in normal mammalian follicles, that is inhibited by the NGF-derived "KGA" peptides. It is not known, and not predicted from the Specification, whether all, or if not all which conditions result in hair loss via the same underlying mechanisms as that caused by UV

radiation. Furthermore, the instant Specification does not provide sufficient guidance as to what forms of hair loss this mechanism would encompass.

Furthermore, the specification is not enabling for the limitations of the claims wherein inhibition of apoptosis in epidermal keratinocytes is used as a method of delaying hair loss in a *vertebrate*, as encompassed by Claims 57-61 and 63-73. *Hair*, in terms of follicular hair or hair in the usual sense of the word, is found only in mammals. Reptiles and fish do not possess hair, for example, and therefore probably do not have follicles that would respond to the NGF fragments used for the claimed methods. Claims 57-61 and 63-73 read on a method of delaying hair loss in a vertebrate by inhibiting apoptosis in keratinocytes. As discussed above, mild UV radiation was used to cause apoptosis in mouse follicles. It is this hair loss, as demonstrated in mammalian follicles, that is inhibited by the NGF-derived "KGA" peptides. It is difficult to imagine a non-mammalian vertebrate model that would yield similar results, and none was suggested by the Specification.

Proper analysis of the Wands factors was provided in the previous Office Action. Due to the large quantity of experimentation required to determine how to use the disclosed polypeptides to delay hair loss in a vertebrate, the lack of direction or guidance in the specification regarding the same, the lack of working examples that measure hair growth in a vertebrate, the state of the art which acknowledges the complexity of inducing new hair growth in non-hairy skin, and the breadth of the claims which embrace methods of delay hair loss in a

non-mammalian vertebrate --undue experimentation would be required of the skilled artisan to make and use the claimed invention in its full scope.

### **Claim Rejections: Double Patenting**

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 57 and 63 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 19 and 2, respectively, of U.S. Patent No. 6,103,689. Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons:

Instant claim 57 is drawn to a method of delaying hair loss in a vertebrate using a biologically active fragment of NGF. Claim 19 of the '689 patent is drawn to a method of inhibiting human epidermal keratinocyte cell loss using a ligand selected from a group that includes a biologically active fragment of nerve growth factor. The specification of the '689 patent teaches that inhibition of keratinocyte and melanocyte cell loss results in the delay of hair

loss and graying (column 2, lines 52-62). It would thus be obvious to the artisan of ordinary skill to administer biologically active fragments of NGF as claimed in claim 19 of the '689 patent in order to delay hair loss as claimed in instant claim 57, because the artisan would expect such this delay to result from the inhibition of keratinocyte cell loss.

Instant claim 63 is drawn to a method of inhibiting apoptosis in keratinocytes by administering a biologically active fragment of nerve growth factor. Claim 2 of the '689 patent is drawn to a method of inhibiting apoptosis in keratinocytes using a ligand selected from a group that includes a biologically active fragment of nerve growth factor. Instant claim 63 is therefore obvious over claim 2 of the '689 patent because it merely narrows the scope of that claim.

**Claim Rejections - 35 USC § 112, second paragraph, indefiniteness.**

Claims 57, 63 and 69 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims recite a "biologically active" fragment of nerve growth factor. However, one skilled in the art cannot determine the metes and bounds of the claimed invention because the biological activity recited in the claims is not defined in the specification and encompasses more than "delaying hair loss," as implied by the instant claims. For example, biological activity of fragments of NGF would include neurite outgrowth.

Art Unit: 1647

***Additional References used for a better understanding of the art:***

Moll, I., 1996, Arch Dermatol Res, 288: 604-610.

***Conclusion***

Claims 57-61 and 63-73 are rejected.

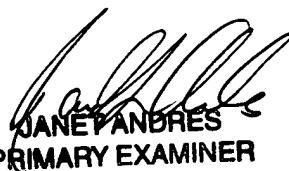
***Advisory information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sandra Wegert whose telephone number is (571) 272-0895. The examiner can normally be reached Monday - Friday from 9:00 AM to 5:00 PM (Eastern Time). If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Brenda Brumback, can be reached at (571) 272-0961.

The fax number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SLW

26 May 2005



JANET ANDRES  
PRIMARY EXAMINER